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ABSTRACT

A teacher educator developed several exercises to illustrate the related concepts of "meaningful learning" (relating new information to prior knowledge) and "elaboration" (using prior knowledge to expand on new information and to make better sense of it). The exercises demonstrate that learning is easier and retention is better when learners can relate new information to things learners already know. Learners frequently impose meaning spontaneously on new material and use their prior knowledge to fill in missing details in ambiguous material. Learners also often have difficulty in distinguishing between ideas that they have read or heard in new material and ideas that they have constructed for themselves. Four activities that have been very effective in explaining these concepts are described, and masters for transparencies and a handout used in the activities are included. (SLD)

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Demonstrating the Concepts *Meaningful Learning* and *Elaboration*

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Over the past 20 years, I have developed and used several classroom exercises to illustrate two related concepts: *meaningful learning* (i.e., relating new information to prior knowledge) and *elaboration* (i.e., using prior knowledge to expand on new information and, in the process, to make better sense of it). The exercises vividly demonstrate several principles related to these concepts:

- Learning is easier and retention is better when learners can relate new information to things they already know.
- Learners frequently impose meaning spontaneously on new material to help them remember it more effectively.
- Learners use their prior knowledge to fill in missing details in ambiguous material.
- Learners have considerable difficulty distinguishing between ideas that they have actually read or heard in new material and ideas that they have constructed for themselves by imposing their prior knowledge on the material.

The exercises always generate lively classroom discussions, during which students themselves derive the principles I have just listed.

Four activities that have been particularly effective are described on the following pages. Masters for two transparencies and a handout that are used in the activities are also included. (You can also find these activities in the *Instructor's Manual to Accompany Educational Psychology*, third edition [Ormrod, 2000, Merrill/Prentice Hall]; the transparencies are in the *Transparencies Package* that accompanies the *Manual*.)

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Activity #1

1. Ask students to take out a piece of scrap paper. Tell them that you are going to read them two 20-word sentences. As soon as you have finished reading each one, they should write down as much of the sentence as they can remember. Read the first sentence below, then give students sufficient time to write what they remember. Do the same thing with the second sentence.

   (1) After walking a long time in the hot sun, we felt thirsty, so began to look for a cool stream.

   (2) An important coordinating center in the hypothalamus integrates the involuntary nervous system, which enervates smooth muscles, cardiac muscles, and glands.

   Your students will probably write the first sentence without complaint, but many will make little if any attempt to recall the second sentence.

2. Ask students which sentence was easier to recall (they will invariably tell you that the first was easier). Then ask them *why* the first sentence was easier. Their responses can provide a lead-in to a discussion of meaningful learning: Things are easier to remember when we can relate them to things we already know. You might also ask if any students have taken a course in human physiology. If so, ask them whether they found the second sentence easier to remember than their classmates did (this is usually the case).

Activity #2

1. Explain that you will read a list of 10 little-known facts; when you are done, students should write down as many of the facts as they can remember. Read the sentences on Transparency 1 (transparency master attached) and give students enough time to write what they can recall.

2. Show the transparency on an overhead projector and ask students to score their responses (giving themselves whole points for remembering entire items and half points for remembering parts of items). Then ask how many students remembered the first sentence (count two "half" students as one), the second sentence, etc. Use the chalkboard to record the number of students remembering each sentence.

3. Ask students why some facts were more memorable than others. You can interpret their responses in terms of their familiarity (or lack thereof) with the names, places, and events described.

Activity #3

1. Explain that some early learning theorists preferred to study how people learn things that they *can't* make sense of; they therefore devised learning tasks involving *nonsense syllables*. Tell students that you will present five pairs of such nonsense syllables. Afterward, you will present the first "word" in each pair and ask them to recall the second. Present each of the five paired-associates on Transparency 2 (transparency master attached) for approximately 6 seconds (covering all other pairs with index cards or small sheets of paper as you present each one).

2. Showing various parts of the transparency, present the first word in each pair and ask students to write down the word that goes with it. Once they have attempted to recall all five paired-associates, present the entire transparency so that they can score their responses.

3. Ask students how easy they found the task to be. Then ask them if anyone was able to make the pairs meaningful in some way (e.g., "The CAFe was SIMply elegant"). Explain that people often try to impose meaning even where none exists—that meaningful learning is a very "natural" learning process.

Activity #4

1. Introduce the activity by telling students that you want to find out how good their memories are for details. Tell them that you will read a short story and then have them take a true-false test about some of the details presented in the story. Read the following story:

   > John had had a busy day at the office. As he was driving home late that night, he stopped at a neighborhood convenience store to pick up a pack of cigarettes. After completing his errand, John stayed on for a few minutes to talk with the pretty store clerk. A heavyset man entered the store and, brusquely pushing John aside, walked up to the counter. He handed the clerk a large canvas bag and insisted that the contents of the cash register be placed into it. The clerk reluctantly obeyed his order. The man then sped away with the filled bag under his arm, leaving the clerk in tears, the empty cash register drawer still open, and John looking on helplessly.

2. Distribute the handout (copy attached) and go over the instructions with the students. Then give them sufficient time to respond to all of the items.

3. Ask students whether the first statement about the story—John had worked hard at the office that day—is true. Many of them will probably tell you that it is true, but in fact it is questionable—the story says only that John had had a busy day. Continue with the remaining items, soliciting students' responses and then giving them the correct answer (see answers below).

4. Ask students why they had difficulty separating fact from fiction. You might also ask what specific assumptions they brought to their interpretation of the story. Their responses should provide the basis for a discussion about how elaboration is involved in long-term memory storage. Explain that learners store both the information they receive and their elaborations of it, such that they often have difficulty later on telling which was which.

Answers:

1. ?
2. ?
3. F
4. ?
5. ?
6. F
7. ?
8. T
9. ?
10. T
11. ?
12. ?
13. ?

Note: Activity #4 was originally published in *Using Your Head: An Owner's Manual* (Ormrod, 1989, Educational Technology Publications) and was modeled after a similar activity in *Communication and Organizational Behavior*, third edition (W. V. Haney, 1973, Richard D. Irwin, Publisher).

Ten Little-Known Facts

1. James Oliver Ellis was born in Chelmsford, Massachusetts, on August 8, 1908.
2. One can see seals, sea otters, and whales from the ocean cliffs of Montana de Oro State Park.
3. Hebb proposes cell assemblies and phase sequences to account for learning.
4. Mickey Mouse is so old that he now wears a hearing aid.
5. Middleswarth Potato Chips are produced in central Pennsylvania.
6. Roseanne lost 50 pounds one year.
7. Mount Washington is the highest peak in New England, rising 6500 feet above sea level.
8. Santa Claus's twin brother wears a green suit and delivers liver and brussels sprouts to bad little boys and girls.
9. Ausubel's theory of obliterative subsumption is a variation of the decay model of forgetting.
10. Thanksgiving is a day of pigging out, followed by several days of intensive dieting.

TEZ—RIN

BUP—JEV

CAF—SIM

DIV—GUX

WOV—LIS

Handout (for Activity #4)

With the story you just heard in mind, determine whether each of the following statements is:

T — Definitely a true statement about the story.
F — Definitely a false statement about the story.
? — May or may not be true given the information presented in the story.

1.	John had worked hard at the office that day.	T	F	?
2.	On his way home from the office, John stopped at a convenience store.	T	F	?
3.	John stopped at the store at noontime.	T	F	?
4.	John was a smoker.	T	F	?
5.	John purchased a pack of cigarettes.	T	F	?
6.	John made a date with the store clerk.	T	F	?
7.	The store clerk was male.	T	F	?
8.	A heavyset man entered the store.	T	F	?
9.	The heavyset man brought a large canvas bag into the store.	T	F	?
10.	The heavyset man brusquely pushed John aside.	T	F	?
11.	Although the cash register originally contained money, the story does not say how much.	T	F	?
12.	The heavyset man left the store with the bag under his arm.	T	F	?
13.	A crime was committed at the convenience store.	T	F	?